ECON 201: Introduction to Macroeconomics
Professor Robert Gordon
Final Exam:
December 5, 2016

NAME _____

Directions: This test is in two parts, a multiple choice question part and a short-answer part. Use this answer packet to complete the exam. Calculators are permitted. Books, notes, reference materials, etc. are prohibited. Good luck!

Part 1: Referring to the questions in the Multiple Choice Questions Packet, choose the one alternative that best completes the statement or answers the question. Each question is worth one point. There is no penalty to guessing, so be sure to answer all of them. Write your answers in the following table using capital letters.

1	11	21	31	41	51
2	12	22	32	42	52
3	13	23	33	43	53
4	14	24	34	44	54
5	15	25	35	45	55
6	16	26	36	46	56
7	17	27	37	47	57
8	18	28	38	48	58
9	19	29	39	49	59
10	20	30	40	50	60

Part 1:

1. The annual percentage change in the aggregate price level is negative when there is:
   A) deflation.
   B) disinflation.
   C) inflation.
   D) spiraling inflation.

2. Which of the following statements is CORRECT?
   A) Supply and demand cannot explain why a particular good or service becomes more expensive relative to other goods and services.
   B) Inflation affects only the more advanced countries, whereas less advanced countries face deflation.
   C) Prices of most goods and services remained stable during the Great Depression.
   D) When the economy is in recession and jobs are hard to find, inflation tends to fall.

3. In an open economy:
   A) the exchange rate is determined by the government.
   B) specialization in activities with a comparative advantage is not possible.
   C) trade is beneficial only to the larger economy.
   D) there is trade in goods, services, and/or assets with other countries.

4. When an economy is expanding, unemployment tends to _____ and overall prices tend to _____.
   A) fall; rise
   B) fall; fall
   C) rise; fall
   D) rise; rise

5. In the product markets:
   A) households supply goods and services.
   B) households demand goods and services.
   C) firms demand resources.
   D) firms supply resources.

Use the following to answer question 6:

Figure: Circular-Flow Model
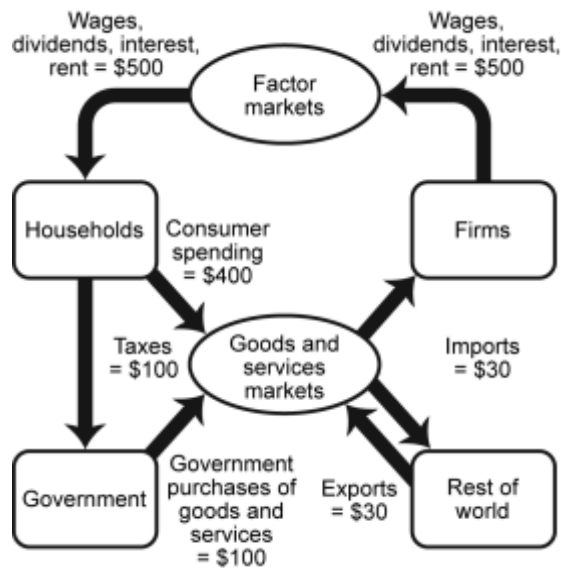
6. (Figure: Circular-Flow Model) Look at the figure Circular-Flow Model. If the circular-flow model is in equilibrium (the sum of money flowing into each box is equal to the sum of the money flowing out of it) and there is an increase in imports, which of the following is likely to happen?
   A) an increase in the nominal GDP
   B) a decrease in the nominal GDP
   C) a decrease in the unemployment rate
   D) an increase in the nominal GDP and in the unemployment rate

7. Two Stanford economists concluded that the ratio of "welfare" in France to the U.S. is 92 percent while the ratio of per-person consumption is only 60 percent. Which item on this list does **not** contribute to the better French performance in the welfare ranking?
   A) Inequality
   B) Leisure
   C) Environmental pollution
   D) Life expectancy

8. The course packet analysis of ever-rising college tuition attributed the increase to three factors. Which of the following is not one of those factors?
   A) Baumol's cost disease
   B) Rising college profitability
   C) Rising inequality
   D) Price discrimination

9. Someone who wants a job but has given up looking for one is considered
   A) A discouraged worker
   B) Out of the labor force
   C) Unemployed
   D) A) and B)
   E) A) and C)

10. In 2011, consumption spending is $7,000, government purchases of goods and services is $2,000, and investment spending is $1,500. If GDP for 2011 is $10,300, exports are _____ and imports are _____.
    A) $400; $200
    B) $100; $200
    C) $600; $800
    D) $500; $300

11. A country's GNP:
    A) must be larger than its GDP.
    B) is the total factor income earned by residents of a country.
    C) includes factor income earned by foreigners.
    D) excludes factor income earned abroad by Americans.

12. The producer price index is often regarded as a warning sign of inflation because:
    A) commodity producers are relatively quick to raise prices.
    B) producers are likely to have monopoly control over prices.
    C) consumers have to pay the prices charged.
    D) commodity producers can sell whatever they want at higher prices.

Use the following to answer question 13:

Table: Labor Force Data

Total population	200 million
Population age 16 and older	150 million
Employed	97 million

13. (Table: Labor Force Data) Look at the table Labor Force Data. Suppose the labor force participation rate is 70%. The number of unemployed adults is:
    A) 8 million.
    B) 53 million.
    C) 103 million.
    D) 50 million.

14. Economists claim that the unemployment rate can understate the true level of unemployment because none of the following groups is included EXCEPT:
    A) discouraged workers.
    B) marginally attached workers.
    C) underemployed workers.
    D) workers without jobs who have looked for work in the past four weeks.

15. According to historical economic data for the United States from 1949 to 2014, the unemployment rate is most likely to rise:
    A) whenever the economy grows at a rate below 3.25%.
    B) only when there is no economic growth.
    C) only when there is positive economic growth.
    D) whenever the economy grows at a rate between 4% and 4.8%.

16. It is generally accepted that a binding minimum wage does all of the following EXCEPT:
    A) decrease the quantity of labor demanded.
    B) increase unemployment.
    C) increase the amount of labor supplied.
    D) decrease the amount of labor supplied.

17. The _____ interest rate _____.
    A) nominal; can be negative
    B) real; cannot be negative
    C) real; can only be positive
    D) real; can be zero, positive, or negative

18. Productivity is declining when:
    A) the number of hours worked exceeds the number of workers.
    B) population growth exceeds real GDP growth.
    C) the ratio of adult civilians employed outside the home rises.
    D) real GDP growth exceeds the population growth.

19. Growth accounting enables us to:
    A) calculate how long it takes the economy to grow.
    B) calculate the effects of technological progress on economic growth.
    C) compare growth rates across countries.
    D) better calculate real GDP per capita.

20. Many economists view resource scarcity as a:
   A) major obstacle to long-run economic growth.
   B) problem resolved fairly well by the market mechanism.
   C) primary reason for poor countries' lack of economic growth.
   D) problem for wealthy countries but not for poorer countries.

21. Which of the following is an advantage to the recipient of foreign investment?
   A) Foreigners are content to receive lower profits and interest rates than are domestic investors.
   B) Foreigners don't expect to receive profits and interest as often as do domestic investors.
   C) Domestic firms with foreign investors are exempt from domestic income taxes on a portion of their net income.
   D) Foreign companies often bring new technology to the recipient country, and this increases productivity.

22. The Congressional Budget Office concluded that nearly the entire "employment shortfall" in 2016 was due to the
   A) Unemployment component
   B) Compensation component
   C) Participation component
   D) Labor turnover component

23. Higher long-term unemployment during and after a recession is associated with all of these except one. Which one?
   A) Suicide
   B) Increased incidence of cancer
   C) Divorce
   D) Lower short-term unemployment

24. The course-packet reading singles out Germany for which of the following?
   A) Work-sharing
   B) High long-term unemployment
   C) Vocational apprenticeships
   D) A) and B)
   E) A) and C)

25. One difference between a closed and an open economy is that:
    A) in the latter, foreign savings complement domestic savings in financing investment spending.
    B) in the latter, the government is more open to the idea of financing investment spending than in the former.
    C) in the former, foreign savings complement domestic savings in financing investment spending.
    D) in the former, foreign savings finance more investment spending than in the latter.

26. A shift away from taxing asset income and toward taxing consumption would lead to:
    A) a larger demand for loanable funds, a higher interest rate, and more investment spending.
    B) a larger supply of loanable funds, a lower interest rate, and more investment spending.
    C) a larger government budget deficit and more investment spending.
    D) a smaller supply of loanable funds, a higher interest rate, and more investment spending.

27. All other things unchanged, an increase in demand for loanable funds would most likely be caused by a(n):
    A) important forecast predicting solid economic growth.
    B) important forecast predicting a recession.
    C) increase in the market interest rate.
    D) increase in the cost of new capital goods.

28. A household's wealth is:
    A) what it earns each period.
    B) what it saves each period.
    C) the value of its accumulated savings.
    D) the value of its financial assets.

29. A government has a budget deficit in an open economy. This means:
    A) the government is spending less than its tax revenue.
    B) exports minus imports are zero.
    C) exports minus imports are positive.
    D) the government is spending more than its tax revenue.

30. In an economy with no taxes and no imports, disposable income decreases from $6,000 to $4,000. If consumption decreases from $4,500 to $3,000, the marginal propensity to save is:
    A) 0.25.
    B) −0.25.
    C) 1.125.
    D) 0.75.

Use the following to answer question 31:

Scenario: Aggregate Consumption Equation
Suppose that the aggregate consumption function is given by the equation $C = 200 + 0.8YD$, where C represents consumption and YD represents disposable income.

31. (Scenario: Aggregate Consumption Equation) Look at the scenario Aggregate Consumption Equation. If housing prices throughout the United States decrease rapidly because of an increase in mortgage foreclosures, which of the following equations could represent the new aggregate consumption function?
    A) $C = 100 + 0.8YD$
    B) $C = 250 + 0.8YD$
    C) $C = 200 + 0.9YD$
    D) $C = 200 + 0.7YD$

32. The initial impact of a sudden decrease in the growth rate of GDP will most likely be a change in _____ investment spending.
    A) planned
    B) unplanned
    C) both planned and unplanned
    D) neither planned nor unplanned

33. If planned aggregate spending rises by $25 billion and the marginal propensity to consume is 0.8, then equilibrium real GDP changes by:
    A) $25 billion.
    B) $125 billion.
    C) $200 billion.
    D) $250 billion.

Use the following to answer question 34:

**Figure: Income–Expenditure Equilibrium**
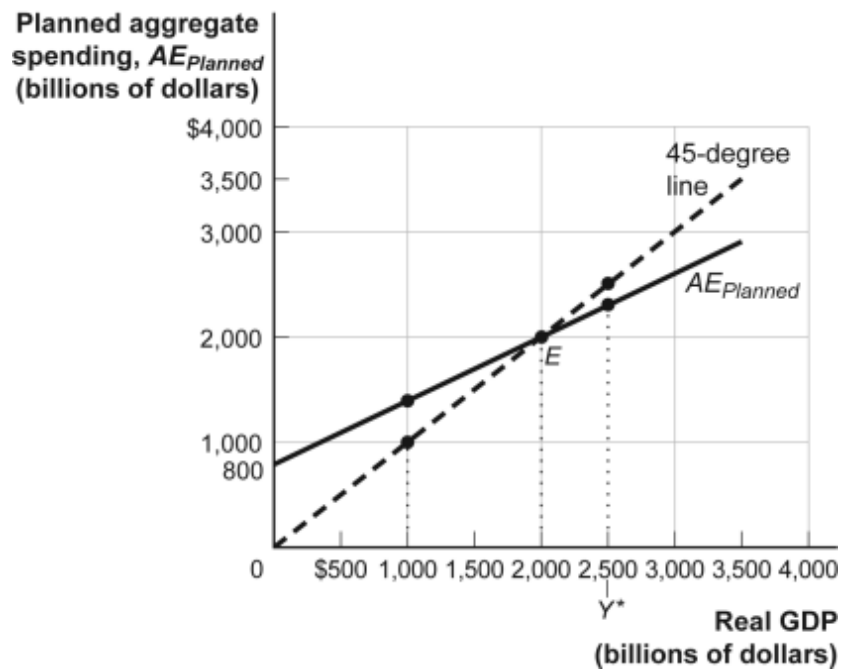
34. (Figure: Income–Expenditure Equilibrium) Look at the table Income–Expenditure Equilibrium. If planned investment spending increases in this economy:
    A) aggregate expenditures curve will shift up, increasing the income–expenditure equilibrium.
    B) aggregate expenditures curve will shift down, decreasing the income–expenditure equilibrium.
    C) economy will move upward along the aggregate expenditures curve, increasing the income–expenditure equilibrium.
    D) economy will move downward along the aggregate expenditures curve, decreasing the income–expenditure equilibrium.

35. Suppose that a presidential candidate who promised large personal income tax cuts is elected. Which of the following is most likely?
    A) a decrease in short-run aggregate supply
    B) a decrease in aggregate demand
    C) an increase in short-run aggregate supply
    D) an increase in aggregate demand

36. If the Fed decreases the quantity of money in circulation, interest rates _____,
    investment spending _____, and the aggregate demand curve shifts to the _____.
    A) decrease; increases; right
    B) decrease; decreases; left
    C) increase; decreases; left
    D) increase; decreases; right

37. Stabilization policies have:
    A) not reduced the effects of business cycles caused by either demand shocks or
       supply shocks.
    B) reduced the economic fluctuations caused by demand shocks but have not been
       effective against supply shocks.
    C) reduced the economic costs of supply shocks but have not been so successful
       against demand shocks.
    D) reduced economic fluctuations by neutralizing the effects of both supply and
       demand shocks.

Use the following to answer question 38:

Figure: Policy Alternatives
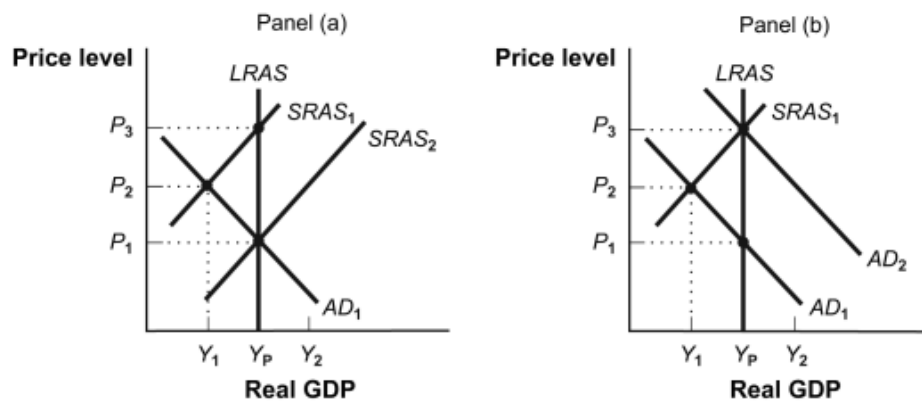
38. (Figure: Policy Alternatives) Look at the figure Policy Alternatives. If the economy is in
    equilibrium at Y_1 in panel (b), it is in:
    A) a recessionary gap.
    B) an inflationary gap.
    C) simultaneous short-run and long-run equilibrium.
    D) full employment.

39. When the price level increases, firms in imperfectly competitive markets will:
   A) decrease output and increase the price.
   B) decrease output and leave their price unchanged.
   C) increase output and increase their price.
   D) increase output and leave their price constant.

40. The long course-packet reading item on productivity growth singles out three factors causing slow productivity growth over the past decade. Which one of these is not on the authors's list?
   A) Failure to measure gains from technological progress
   B) Poor educational achievement
   C) Depressed demand
   D) Lower impact of recent inventions on productivity growth

41. The course packet article on low investment ("Econundrum") singles out which industry as a culprit?
   A) Automobiles
   B) Agriculture
   C) Finance
   D) Oil

42. The article on the longevity of expansions concluded that
   A) The longer the expansion, the more likely it is to end
   B) The shorter the expansion, the more likely it is to end
   C) There is no correlation between recessions and the length of expansions
   D) There is a strong correlation between recessions and the length of expansions

43. A recessionary gap can be closed with:
   A) contractionary monetary policy.
   B) an increase in taxes.
   C) a decrease in government purchases.
   D) expansionary fiscal policy.

44. The decision to build more aircraft carriers to keep employment high is an example of:
   A) prudent defense spending.
   B) expansionary fiscal policy.
   C) neutral fiscal policy.
   D) being prepared to defend our country.

45. If the marginal propensity to consume is 0.9, then the tax multiplier will be:
    A) impossible to determine.
    B) greater than 10.
    C) less than 10.
    D) zero, because there is no multiplier effect from taxes.

46. The larger the amount of outstanding public debt:
    A) the lower the tax revenue the government must collect.
    B) the more spending the government can afford.
    C) the smaller the crowding out of private investment spending.
    D) the larger the fraction of the federal budget deficit that must be devoted to interest payments.

47. Included in M1 are:
    A) checkable bank deposits.
    B) savings deposits.
    C) U.S. Treasury bills.
    D) demand deposits, savings deposits, and U.S. Treasury bills.

48. The paradox of thrift states that
    A) An attempt by households to save more reduces total saving
    B) An attempt by the government to raise national saving reduces private saving
    C) An attempt by corporations to save more reduces total saving
    D) An attempt by the government to raise national saving raises private saving

49. The course packet article about the Smith family provides an example of
    A) The mortgage foreclosure effect
    B) The accelerator effect
    C) The paradox of thrift
    D) The multiplier effect

50. The article "Hurry Up and Waste" uses the following as an example of waste
    A) The Great Depression
    B) World War II
    C) The Obama stimulus
    D) State government spending

51. Probably the most important feature of deposit insurance is that it:
    A) is paid for by the federal government.
    B) costs so little to buy the policies to keep your money safe.
    C) protects the economy against bank runs.
    D) ensures that banks will always make a profit.

52. Suppose the required reserve ratio is 10% and a depositor withdraws $500 from her checkable deposit. The money supply will _____ if the banking system does NOT hold any excess reserves.
    A) be unchanged
    B) decrease by $500
    C) decrease by $4,500
    D) decrease by $5,000

53. Savings and loans' difficulties began in the 1970s, when inflation _____ and interest rates _____.
    A) increased; increased
    B) increased; decreased
    C) decreased; increased
    D) decreased; decreased

54. The money demand curve is _____ because the opportunity cost of holding money is _____ related to the interest rate.
    A) downward-sloping; inversely
    B) downward-sloping; directly
    C) upward-sloping; inversely
    D) upward-sloping; directly

55. The Federal Open Market Committee has decided that the federal funds rate should be 0.5% rather than the current rate of 1.25%. The appropriate open market action is to _____ Treasury bills to _____ money _____.
    A) buy; decrease; demand
    B) buy; decrease; supply
    C) sell; decrease; demand
    D) buy; increase; supply

56. An increase in the money supply will decrease interest rates in the short run but will not affect interest rates in the long run because an increase in the money supply will eventually _____ prices and _____ money demand.
    A) decrease; decrease
    B) decrease; increase
    C) increase; decrease
    D) increase; increase

57. Which one of the following statements is FALSE?
    A) The Taylor rule sets the federal funds rate on the basis of both inflation rate and output gap, whereas inflation targeting is based on a desired inflation rate.
    B) The Taylor rule sets the federal funds rate on the basis of past inflation rates, whereas inflation targeting is based on a forecast of the inflation rate.
    C) The Taylor rule can be more flexible, whereas inflation targeting provides more transparency and accountability.
    D) The Taylor rule sets the federal funds rate on the basis of only past inflation rates, whereas inflation targeting is based on a target interest rate and business cycles.

58. The Federal Reserve's "Quantitative Easting" strategy involves
    A) The Fed buys treasury bills
    B) The Fed sells treasury bills
    C) The Fed buys long-term Treasury bonds
    D) The Fed sells long-term Treasury bonds

59. The term "NINJA" loans refers to
    A) Sub-prime borrowing
    B) Corporate borrowing
    C) Government borrowing
    D) Under-water borrowing

60. Which of the following explains why the Federal Reserve did not raise its Federal Funds rate target during 2016?
    A) Low inflation
    B) Low unemployment
    C) Low labor-force participation
    D) A) and B)
    E) A) and C)

Part 2: Solve the following problems in the provided space. *Show all your work clearly.*

Problem 1 (8 points)

Complete the blanks using the following table. ***Round all values to the nearest two decimal places, including percentages. That is, answers should look like 13,300.72 or 29.87%.***

	2016		2015		Annual Percentage Change between 2015-2016
	Price	Quantity	Price	Quantity	
Scissors	12	12	9	9	(LN formula)
Papers	10	10	13	13	
Nominal GDP	1. 244		2. 250		
Real GDP in 2015 prices	3. 238		4. 250		5. -4.92%
Real GDP in 2016 prices	6. 244		7. 238		8. 2.49%

a) Fill in the blanks above. (4 points; 0.5 points per blank)
b) Calculate the percentage growth in chain-weighted GDP. (2 points)

   -1.22 %

c) Calculate the GDP deflator with 2015 prices for 2015 and 2016. (2 points)

   For 2015: 100
   For 2016: 102.52

Problem 2 (12 points)

Consider the following long-term investment strategies:

1. Strategy A:
    - For every 100 dollars invested on 01.01.2016, it pays $144 on 01.01.2018
    - For every 100 dollars invested on 01.01.2018, it pays $121 on 01.01.2020
2. Strategy B:
    - For every 100 dollars invested on 01.01.2016, it offers an annual growth rate of 10% for 01.01.2016-01.01.2020. In addition to that it pays two-time bonus of $10 (in total $20), the first one is disbursed at the day of initial investment 01.01.2016 and the second one is disbursed at 01.01.2018. Note that these amounts are immediately reinvested for with the offered 10% rate.

a) Calculate the annual returns (growth rates) to Strategy A for 2016-2018 and 2018-2020 (*Hint: treat two periods separately*). (2 points)

2016-2018: 18.23%
2018-2020: 9.53%

b) How many dollars does an investor have at the beginning of 2020 after investing $300 in Strategy A and B. (give two numbers for each strategy) (2 points)

A: 522.72
B: 330exp(0.4) + 30exp(0.2) = 492.30 + 36.64 = 528.94

c) Which of the two strategies should the investor choose if she has $1000? (2 points)

A (=1742.4) < B (=1763.13)

d) How big should the bonus offered in strategy B (instead of $10) be for both strategies to bring the same profit in 2020? Express the bonus per 100 dollars. (6 points)

(100+b)exp(0.4)+bexp(0.2)=174.24
(1.49+1.22)b=174.24-149.18 then b = 9.25$

Problem 3 (6 points)

Age	Full Time workers	Part Time workers	Don't have a job but are looking for one	Don't have a job and are not looking for one	**Total**
<16	0	0	0	100	100
16-20	20	60	40	120	240
21-30	80	60	50	30	220
31-50	100	80	70	20	270
51-70	200	40	60	40	340
>70	10	20	40	75	145
Total	410	260	260	385	1315

a) Calculate the **Labor Force Participation Rate** for this economy. Report as a percentage to two decimal places. _____ (1 point)

76.54% = 930/1215

b) Calculate the **Unemployment Rate** for this economy. Report as a percentage to two decimal places. _____ (1 point)

27.96%= 260/930

c) The given city above had a very interesting demographics. The people in the cohort group 16-20 were all twins. In this cohort group, all part time workers were working for the construction of a community college. Construction company did not allow twins to work at the same time of the day. In a construction accident, some workers lost their lives. To compensate for the loses, construction company and community college decided to invite twins of the workers passed away to college. All workers accepted this invitation and they stopped looking for job. Then Bureau of Labor Statistics (BLS) announced that LF participation rate decreased to 75%. What was the number of workers lost their lives? _____(4 points)

0.75 = (930-2x)/(1215-x), x = 15

Problem 4 (20 points)

Consider the following model economy:

Autonomous consumption	1000
Net export	-100
Investment	300
Government spending	1000
Transfers	200
Autonomous taxes	100
Income tax rate	1/3
Multiplier	3/2

a) What is the marginal propensity to consume? (2 points)

$k = 1/(1-MPC(1-t))$ implies MPC = 1/2.

b) What is the level of autonomous aggregate expenditure? (2 points)

$AAE = A + I + G + X - IM - MPC(Ta - TR) = 2250$

c) What is the equilibrium level of output? (1 points)

$Y = k*AAE = 3/2*2250 = 3375$

d) What is the level of public savings? Does the government run a budget surplus or deficit? (3 points)

$S\_pub = T\_a + t*Y - TR - G = 25$
Budget surplus

e) Suppose that the government wants to boost the economy before the upcoming elections. By how much do they have to increase transfers to achieve an equilibrium output of 3500? (4 points)

$dAAE = MPC * dTR$
$dY = k*MPC*dTR$
$dY = 125 \rightarrow dTR = 166.67.$

f) What income tax rate would accomplish the same? Use the MPC you found in part a).
Hint: the multiplier depends on the income tax hence won't be equal to 1.5 anymore. (4 points)

$3500 = 1/(1-0.5(1-t)) * 2250 \rightarrow t = 0.28.$

g) What are the new levels of government savings under the scenarios of part e) and f)? Which policy is more expensive? (4 points)

S_pub(TR) = 100 + 1/3 * 3500 – 366.67 – 1000 = -100
S_pub(t) = 100 + 0.28*3500 – 200 – 1000 = -120
Decreasing the income tax rate is the costlier fiscal stimulus.

Problem 5 (14 points)

You are given the following information:

Deposits_____700
Currency-to-deposit ratio____0.1
Required reserve ratio_____0.1

a) Calculate the monetary base in this economy. (2 points)

B = R + C = rr*D + c*D = 140

b) Solve for the money multiplier. (2 points)

M = C + D = 770
mu = M/B = 770/140 = 5.5

c) Solve for the level of bank reserves in this economy. (2 points)

R = rrD = 0.05*80 = 4

d) More and more people decide to put their money into checking accounts instead of stashing it under the mattress. Consequently, the currency-to-deposits ratio falls to 0.05. Assume that the reserve requirement remains unchanged. What is the level of the monetary base that guarantees that the money supply remains constant? (4 points)

M = (1+c') / (c'+rr) * B' can be solved for B' = 110.

e) What are the new values of currency in circulation, deposits and bank reserves consistent with part d)? (4 points)

C'/D' = c' = 0.05
R'/D' = rr = 0.1
R' + C' = B' = 110

3 equations in 3 unknowns yield R' = 73.33, C' = 36.67, D'=733.33.

Answer Key

1. A
2. D
3. D
4. A
5. B
6. B
7. C
8. B
9. D
10. C
11. B
12. A
13. A
14. D
15. A
16. D
17. D
18. B
19. B
20. B
21. D
22. C
23. D
24. E
25. A
26. B
27. A
28. C
29. D
30. A
31. A
32. A
33. B
34. A
35. D
36. C
37. B
38. A
39. D
40. B
41. D
42. C
43. D
44. B

45. C
46. D
47. A
48. A
49. D
50. B
51. C
52. C
53. A
54. B
55. D
56. D
57. D
58. C
59. A
60. E